

**Amendments In the Claims**

Please amend Claims 1, 6, 11, 12, 16, 21, 24, 25, and 50 as follows:

1. **(Currently Amended)** A method of arranging objects comprising:  
 setting a class hierarchy, wherein  
     the class hierarchy comprises an upper level class and a lower level class,  
     and  
     the objects are members of at least one of the upper level class and the  
     lower level class;  
 assigning a first attribute to the upper level class, wherein  
     the first attribute describes the objects;  
 inheriting of the first attribute by the lower level class, wherein  
     the first attribute is within a first domain with regard to the upper level  
     class,  
     the first attribute is within a second domain with regard to the lower level  
     class,  
     a second domain value set of the second domain is smaller than a first  
     domain value set of the first domain, and  
     the first attribute is restricted to the second domain value set upon the  
     inheriting;  
 assigning a second attribute to the lower level class, wherein  
     the second attribute describes an object associated with the lower level  
     class;  
~~associating each object with a class within the class hierarchy such that each~~  
~~attribute describing the object has a non-null value, wherein~~  
~~said each attribute is a member of the set of attributes assigned to the~~  
~~class; and~~  
choosing a class with which to associate an object, wherein

**the class is chosen such that every attribute associated with the class**  
**has a non-null value used to describe the object; and**

said method is performed by a processor configured to perform said method.

2. (Previously Presented) The method of arranging objects of claim 1, further comprising:  
superseding said first attribute of said upper level class by assigning a third attribute to the lower level class, wherein  
the third attribute describes an object that is associated with the lower level class.
3. (Previously Presented) The method of arranging objects of claim 1, wherein the first attribute comprises a distinctive domain value set.
4. (Previously Presented) The method of arranging objects of claim 1, wherein the class hierarchy further comprises a third class below the lower level class in the class hierarchy, and further comprising:  
inheriting of the first attribute and the second attribute by the third class.
5. (Previously Presented) The method of arranging objects of claim 1, further comprising:  
expanding the class hierarchy horizontally by adding a fourth class to the lower level class; and  
inheriting of the first attribute by the fourth class.
6. **(Currently Amended)** A hierarchical class architecture of objects stored in a memory comprising:  
an upper level class;  
a lower level class, wherein the upper and lower level classes are stored in the memory;  
a first domain value set of a first domain of the upper level class;  
a second domain value set of a second domain;

a first attribute, wherein

the first attribute is assigned to the upper level class,  
the first attribute is within the first domain,  
the first attribute is within the second domain,  
the objects are members of at least one of the upper level class and the  
lower level class,  
the first attribute describes the objects,  
the lower level class is configured to inherit the first attribute,  
the second domain value set is smaller than the first domain value set, and  
the first attribute is restricted to the second domain value set upon the first  
attribute being inherited by the lower level class; and

a second attribute, wherein

the second attribute is assigned to the lower level class,  
the second attribute is within the second domain, and  
the second attribute describes an object associated with the lower level  
class, and  
each object in the hierarchical class architecture of objects is associated  
with a **chosen** class within the class hierarchy ~~such that each~~  
~~attribute describing the object has a non-null value~~, wherein  
**the class is chosen such that every attribute associated with the**  
**class has a non-null value used to describe the object.**  
~~said each attribute is a member of the set of attributes assigned~~  
~~to the class.~~

7. (Original) The hierarchical class architecture of claim 6, further comprising:

an additional attribute, wherein

the additional attribute is assigned to the lower level class, and  
the attribute describes an object in the lower level class.

8. (Previously Presented) The hierarchical class architecture of claim 6, wherein the first attribute comprises a distinctive domain value set.

9. (Previously Presented) The hierarchical class architecture of claim 6, further comprising:

a third class, wherein

the third class is below the lower level class in the hierarchical class architecture, and

the third class is configured to inherit the first attribute and the second attribute.

10. (Previously Presented) The hierarchical class architecture of claim 6, wherein

the lower level class is configured to be expanded horizontally by virtue of being configured to provide for addition of a fourth class, and

the fourth class is configured to inherit the first attribute.

11. **(Currently Amended)** A computer system comprising:

a processor;

a computer readable medium coupled to the processor; and

computer code, encoded in the computer readable medium, configured to cause the processor to:

set a class hierarchy, wherein

the class hierarchy comprises an upper level class and a lower level class, and

the objects are members of at least one of the upper level class and the lower level class;

assign a first attribute to the upper level class, wherein

the first attribute describes the objects;

provide inheritance of the first attribute by the lower level class, wherein

the first attribute is within a first domain with regard to the upper level class,

the first attribute is within a second domain with regard to the lower level class,  
 a second domain value set of the second domain is smaller than a first domain value set of the first domain, and  
 the first attribute is restricted to the second domain value set upon the inheritance of the attribute by the lower level class;  
 assign a second attribute to the lower level class, wherein  
 the second attribute describes an object associated with the lower level class; and  
choose a class with which to associate an ~~each~~ object ~~with a class~~  
~~within the class hierarchy such that each attribute describing~~  
~~the object has a non-null value~~, wherein  
the class is chosen such that every attribute associated with the  
class has a non-null value used to describe the object.  
~~said each attribute is a member of the set of attributes assigned~~  
~~to the class.~~

12. (Currently Amended) The computer system of claim 11, wherein the computer code is further configured to cause the processor to:  
 assign ~~a~~ an third attribute to the lower level class, the third attribute describing an object that is a member of the lower level class.
13. (Previously Presented) The computer system of claim 11, wherein the first attribute comprises a distinctive domain value set.
14. (Previously Presented) The computer system of claim 11, wherein the class hierarchy further comprises a third class below the lower level class in the class hierarchy, and the computer code is further configured to cause the processor to:  
 provide inheritance of the first attribute and the second attribute by the third class.
15. (Previously Presented) The computer system of claim 11, wherein the computer code is further configured to cause the processor to:

expand the class hierarchy horizontally by adding a fourth class to the lower level class; and  
provide inheritance of the first attribute by the fourth class.

16. **(Currently Amended)** An apparatus for arranging objects comprising:  
means for setting a class hierarchy, wherein  
the class hierarchy comprises an upper level class and a lower level class,  
and  
the objects are members of at least one of the upper level class and the lower level class;  
means for assigning a first attribute to the upper level class, wherein the first attribute describes the objects;  
means for inheriting of the first attribute by the lower level class, wherein  
the first attribute is within a first domain with regard to the upper level class,  
the first attribute is within a second domain with regard to the lower level class,  
a second domain value set of the second domain is smaller than a first domain value set of the first domain, and  
the first attribute is restricted to the second domain value set by the means for inheriting;  
means for assigning a second attribute to the lower level class, wherein  
the second attribute describes objects associated with the lower level class;  
and  
means for choosing a class with which to associate an object ~~associating each object with a class within the class hierarchy such that each attribute describing the object has a non-null value~~, wherein  
the class is chosen such that every attribute associated with the class has a non-null value used to describe the object.  
~~said each attribute is a member of the set of attributes assigned to the class.~~

17. (Previously Presented) The apparatus of claim 16, further comprising:  
means for superseding said first attribute of said upper level class comprising  
means for assigning a third attribute to the lower level class, wherein  
the third attribute describes an object that is associated with the lower  
level class.
18. (Previously Presented) The apparatus of claim 16, wherein the first  
attribute comprises a distinctive domain value set.
19. (Previously Presented) The apparatus of claim 16, wherein the class  
hierarchy further comprises a third class below the lower level class in the class  
hierarchy, and further comprising:  
means for inheriting of the first attribute and the second attribute by the third  
class.
20. (Previously Presented) The apparatus of claim 16, further comprising:  
means for expanding the class hierarchy horizontally by adding a fourth class to  
the lower level class; and  
means for inheriting of the first attribute by the fourth class.
21. **(Currently Amended)** A computer program product, encoded in  
computer readable media, comprising:  
a first set of instructions, executable on a computer system, configured to set a  
class hierarchy, wherein  
the class hierarchy comprises an upper level class and a lower level class,  
and  
the objects are members of at least one of the upper level class and the  
lower level class;  
a second set of instructions, executable on the computer system, configured to  
assign a first attribute to the upper level class, wherein the first attribute  
describes the objects;

- a third set of instructions, executable on the computer system, configured to provide inheritance of the first attribute by the lower level class, wherein the first attribute is within a first domain with regard to the upper level class,
- the first attribute is within a second domain with regard to the lower level class,
- a second domain value set of the second domain is smaller than a first domain value set of the first domain, and
- the first attribute is restricted to the second domain value set by the third set of instructions;
- a fourth set of instructions, executable on the computer system, configured to assign a second attribute to the lower level class, wherein the second attribute describes an object associated with the lower level class; and
- a fifth set of instructions, executable on the computer system, configured to **choose a class with which to** associate **an** ~~each~~ object ~~with a class within the class hierarchy such that each attribute describing the object has a non-null value~~, wherein **the class is chosen such that every attribute associated with the class has a non-null value used to describe the object.** ~~said each attribute is a member of the set of attributes assigned to the class.~~



22. (Previously Presented) The computer program product of claim 21, further comprising:
- a sixth set of instructions, executable on the computer system, configured to supersede said first attribute of said upper level class by virtue of being configured to assign a third attribute to the lower level class, the third attribute describing an object that is associated with the lower level class.
23. (Previously Presented) The computer program product of claim 21, wherein the first attribute comprises a distinctive domain value set.
24. (Currently Amended) The computer program product of claim 21, wherein the class hierarchy further comprises a third class below the lower level class in the class hierarchy, and further comprising:
- a ~~sixth~~ seventh set of instructions, executable on the computer system, configured to provide inheritance of the first attribute and the second attribute by the third class.
25. (Currently Amended) The computer program product of claim 21, further comprising:
- an ~~sixth~~ eighth set of instructions, executable on the computer system, configured to expand the class hierarchy horizontally by adding a fourth class to the lower level class; and
  - a ~~seventh~~ ninth set of instructions, executable on the computer system, configured to provide inheritance of the first attribute by the fourth class.
26. (Previously Presented) The method of arranging objects of claim 1, further comprising:
- associating the upper level class with the first domain value set, and
  - associating the lower level class with the second domain value set.

27. (Previously Presented) The method of arranging objects of claim 26, wherein  
another attribute is within the second domain.
28. (Previously Presented) The method of arranging objects of claim 27, wherein  
the another attribute is an overriding attribute.
29. (Previously Presented) The method of arranging objects of claim 27, further comprising:  
superceding the attribute with the another attribute, wherein  
the superceding is performed if the second domain is different from the  
first domain.
- 30-32. Cancelled.
33. (Previously Presented) The hierarchical class architecture of objects of claim 6, further comprising:  
another attribute, wherein the another attribute is another attribute within the  
second domain.
34. (Previously Presented) The hierarchical class architecture of objects of claim 33, wherein  
the another attribute is an overriding attribute.
35. (Previously Presented) The hierarchical class architecture of objects of claim 33, wherein  
the another attribute is configured to supercede the attribute, and  
the another attribute supercedes the attribute if the second domain is different  
from the first domain.
- 36-37. Cancelled.

38. (Previously Presented) The computer system of claim 11, wherein the computer code is further configured to cause the processor to:  
associate the upper level class with the first domain value set, and  
associate the lower level class with the second domain value set.
39. (Previously Presented) The computer system of claim 38, wherein another attribute is within the second domain.
40. (Previously Presented) The computer system of claim 39, wherein the another attribute is an overriding attribute.
41. (Previously Presented) The computer system of claim 39, wherein the computer code is further configured to cause the processor to:  
supercede the attribute with the another attribute, if the second domain is different  
from the first domain.
- 42-43. Cancelled.
44. (Previously Presented) The apparatus of claim 16, wherein the computer code is further configured to cause the processor to:  
associate the upper level class with the first domain value set, and  
associate the lower level class with the second domain value set.
45. (Previously Presented) The apparatus of claim 44, wherein another attribute is within the second domain.
46. (Previously Presented) The apparatus of claim 45, wherein the another attribute is an overriding attribute.

47. (Previously Presented) The apparatus of claim 45, further comprising:  
means for superceding the attribute with the another attribute, wherein  
the superceding is performed if the second domain is different from the  
first domain.

48-49. Cancelled.

50. (Previously Presented) The computer program product of claim 21, further comprising:

a sixth ~~tenth~~ set of instructions, executable on the computer system, configured to  
associate the upper level class with the first domain value set; and  
a seventh ~~an eleventh~~ set of instructions, executable on the computer system,  
configured to associate the lower level class with the second domain value  
set.

51. (Previously Presented) The computer program product of claim 50,  
wherein  
another attribute is within the second domain.

52. (Previously Presented) The computer program product of claim 51,  
wherein  
the another attribute is an overriding attribute.

53. (Previously Presented) The computer program product of claim 51,  
further comprising:  
a twelfth set of instructions, executable on the computer system, configured to  
supercede the attribute with the another attribute, if the second domain is  
different from the first domain.

54-55. Cancelled.